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UNITED STATES DEPARTMENT OF AGRICULTURE

DESCRIPTION OF

LIVESTOCK EXHIBIT

United States Department of Agriculture

DESCRIPTION OF

LIVESTOCK EXHIBIT

The exhibits which are briefly described on the following pages deal with various phases of livestock production. Much of the exhibit material is centered around areas where well-balanced systems of livestock farming are practiced. The Corn Belt and some adjacent areas have, therefore, been given special attention because of the excellent results obtained from the systems of livestock farming which have been followed in those sections.

Representatives of the Department accompanying the exhibit are ready to explain to visitors various lines of the Department's work and to discuss livestock matters generally.

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UNITED STATES DEPARTMENT OF AGRICULTURE

Description of Livestock Exhibit.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"BEEF PRODUCTION."

The exhibit entitled "Beef Production" is based on an extensive survey being made by the Department of Agriculture and State agricultural colleges throughout steer-feeding sections in the States of Illinois, Indiana, Iowa, Missouri, and Nebraska. Several phases of beef production are being studied. The studies have involved approximately 20,000 steers each year for the last four years. This year's work will complete the study.

Cattle feeders in the Corn Belt usually either buy their feeder cattle direct from the range or at the large livestock markets in the Middle West. Most of the feeders are finished on corn and legume hay, or corn and silage supplemented with a protein meal. The kind of hay grown in the locality usually determines the ration used. The survey has shown that about the same number of steers are fed throughout this region by each method. In those areas where clover and alfalfa hay are grown abundantly, the standard ration is corn and clover or alfalfa hay. The legume hay supplies the necessary amount of protein. In other areas where the bulk of the hay is mixed hay, silage is included in the ration to supply the roughage, and cottonseed or linseed meal is fed as a supplement to supply the protein.

The following table shows the length of feeding period and amounts of feed to make the same amount of total gain on a feeder steer, under each system of feeding, as determined from this survey. The figures apply to steers around 2 years of age, weighing 850 to 900 pounds at the time of going on feed.

	Corn and alfalfa hay	Corn, silage & cottonseed meal
Length of feeding period	146 days	185 days
Total gain	302 pounds	302 pounds
Daily gain	2.07 pounds	1.63 pounds

Feed consumed per steer:

Corn	52 bushels
Alfalfa hay	1,043 pounds
Straw	239 pounds
Corn	30 bushels
Cottonseed meal	177 pounds
Mixed hay	690 pounds
Silage	5,583 pounds
Straw	612 pounds

Information on feeding problems and other phases of beef production can be secured by writing to the Department.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit.

"PORK PRODUCTION."

The booth entitled "Pork Production" gives the essential points for raising swine economically. The important factors under the control of the hog raiser are the type of animal grown and the feeding and management methods used.

When bred to big-type boars, big-type sows in proper physical condition at the time of mating, and well fed and managed during the gestation period will not only produce strong, vigorous pigs, but will have abundance of milk to nourish them properly.

Pasturage of good quality, shorts or wheat middlings and fish meal or tankage to furnish protein, with sufficient corn or barley to keep them in fair flesh, represent the feeds necessary for breeding hogs. Alfalfa, soy-bean or clover hay are valuable additions for winter feeding. It is important that breeding hogs be given daily exercise for the best results.

Any feeds supplied during 24 hours after farrowing are objectionable, and may be responsible for poor results with the newborn pigs. However, when feeds are again supplied they should be in small amounts and gradually increased to full feed within about 10 days; the sows readily use them to advantage. It should be kept in mind that sows sparingly fed can not give milk enough to make pigs grow as they should.

Even before the pigs are weaned they should have access to corn and shorts or middlings in self-feeders as a supplement to the sow's milk. As soon as they are weaned the pigs should be kept on full feed, either by self-feeder or by hand. By this system pigs grow continuously from the moment of birth to maturity. Suitable feeds, furnished to vigorous pigs of proper type, result in the production of hogs of market weight at about eight months of age.

"The profitable pig is the one that never stops growing from farrowing to market," is a good slogan for every hog raiser.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

SHEEP ON THE FARM

Raising Sheep on Temporary Pastures: Farm sheep raising is profitable under favorable conditions of breeding, feeding and management. Demand is strong for good fat lambs, and sheep of the mutton type are well adapted to farms which furnish abundance of grass, forage, and grain for the production of quick-maturing market lambs.

In the crowded farming sections where land is high priced and it is essential to utilize each field intensively for maximum results from every acre, the temporary pastures such as wheat, oats and peas, soy beans, rape, etc., can often be used to advantage in supplementing permanent pastures and meadows at times when the blue-grass is dry and succulent pastures are urgently needed. Blue-grass pastures and hay stubble often become dry and sparse just when succulent feed is most needed to finish spring lambs for market. It also frequently happens that soy beans, rape, wheat or rye pastures are splendid for flushing ewes during the breeding season in August and early September before rains have freshened up the old pastures and meadows.

At "Sheep Acres" on the U. S. Experiment Farm, Beltsville, Md., sheep have been raised on temporary pastures for a number of years and the results of the experiments conducted there lead to the following conclusions:

1. Sheep can be successfully and economically raised with temporary pastures.

2. Numerous forage crops may be used for these pastures. The kinds used should depend largely upon the soil and climatic conditions in which they are to be grown.

3. More sheep can be raised per acre on temporary pastures than can be raised on permanent pastures on soils of equal fertility.

4. Pasturing sheep on annual crops makes it possible to rotate pastures more frequently and thus lessen the danger of infection by stomach worms and other internal parasites.

5. Temporary pastures, because they furnish an abundance of succulent green feed at all times, tend to increase the milk flow and make it more even throughout the lactation period, thus assuring rapid growth of lambs.

For further information see Farmers' Bulletin No. 1181
"Raising Sheep on Temporary Pastures"

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

STORY OF FARM POWER.

Efficient and economical use of power for drawbar work on the farm is a vital problem in present-day agriculture. To help farmers and agricultural workers understand the comparative values of tractor vs. horse-furnished power, for doing various farm operations, the "Story of Farm Power" exhibit gives facts and figures obtained from a cooperative survey made in the Corn Belt States of Ohio, Indiana, and Illinois in the fall of 1920.

This survey was made by the U. S. Department of Agriculture cooperating with the State Colleges of Agriculture of the States mentioned and covered 286 representative farms in that region, on all of which both tractors and horses were owned and used as sources of farm power.

The average size of the farms visited was 258 acres. Their power equipment varied as follows: Tractors; 174 farms owned 2-plow tractors, 104 farms had 3-plow tractors, 6 farms used 4-plow tractors; Horses, average number owned by each farm was 6.8 head, the individual holdings varying from 2 to 11 animals.

Graphic illustrations taken from the survey data bring out the fact that tractor power has its advantages for some classes of farm work, but that there are many other operations for which horses are better suited. The data showed that in general 70 per cent of all the farm power was furnished by horses and 30 per cent by tractors, the individual distribution among the major farm operations being as follows: Tractor, 85 per cent of plowing, 66 per cent of disking, harrowing, etc., 41 per cent of cutting grain; Horses, 97 per cent of all seeding, 97 per cent of cultivating, 92 per cent of haying, 100 per cent of road hauling. The average use of tractors in work days per year was 30.8 and the average number of full days' work per year per horse was 68.6.

Comparisons of power costs, computed on a basis of September 1921 prices for fuel, oil, and feed, (other costs as of the 1920 survey) bring out the fact that horses and tractors furnished drawbar power per acre of operation as follows: Plowing, tractor, $1.72, horses, $1.57; disking, tractor, $0.55 - horses, $0.34; disking in combination, tractor, $0.59,- horses, $0.52; harrowing, etc. tractor, $0.30, horses, $0.18; drawing hay loader, tractor, $0.91, horses, $0.52; drawing grain binder tractor, $0.55, horses, $0.31.

Yearly tractor costs per farm consisted of $185 for depreciation while the oil and fuel consumptions were 30 and 550 gallons respectively and minor costs totalling $79. Yearly horse costs per farm show that the following amounts of feeds were required: Oats, 150 bushels; corn 255 bushels; 9 tons hay; 14 acres corn stalks; 15 acres grass pasture; 10 tons straw and fodder, together with minor costs totalling $170.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"USE OF MEAT IN THE DIET."

The exhibit entitled "Use of Meat in the Diet" shows in the center section the average or census family sitting down to a table upon which can be seen a good variety of dishes including a beef roast, and in the side sections reproductions of various meat dishes with statements of their value in the diet.

A dish of sweetbreads and kidneys on toast and another of liver and onions are used to illustrate ways of preparing meat organs for the table. Meat organs such as sweetbreads, kidneys, liver, heart and tripe have been found rich in vitamins A and B.

A dish of veal croquettes illustrates the fact that meat left-overs lend attractive flavor to cereals and other foods; a meat stew with vegetables shows that meats combine well with other foods to make well-balanced meals. Meat furnishes iron, and vegetables furnish lime.

A roast shoulder of lamb which has been boned and stuffed, a shoulder roast of beef, and a baked ham are shown to illustrate dishes prepared of meats alone.

Besides being palatable, meat is easily digested and readily assimilated It provides protein needed for growth and body tissue. It provides fat used in production of energy and for body fat. It provides minerals such as iron needed by the blood and phosphorus used in bone building. And some meats, especially pork, are good sources of vitamin B, a substance necessary for the growth and maintenance of man.

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UNITED STATES DEPARTMENT OF AGRICULTURE

Livestock Exhibit

"GOOD MANAGEMENT ELIMINATES EGG LOSSES."

It is estimated by the U. S. Department of Agriculture that by marketing fertile eggs which spoil quickly when exposed to heat, the egg producers of the United States lose $15,000,000 a year. Serious egg losses are also caused by failure to gather eggs regularly, causing them to become broken in the nests or frozen during cold weather; by improper handling and infrequent marketing, and poor management in other respects.

This exhibit gives five rules for the production of better eggs. They are as follows:

1. Provide one nest for every four hens. Keep the nests clean.

2. Gather the eggs twice daily.

3. Keep the eggs in a cool, dry, room or cellar.

4. Market the eggs at least twice a week.

5. As soon as the hatching season is over, sell, kill, or confine all male birds.

Summer heat has the same effect on fertile eggs as the sitting hen or incubator. When exposed to heat, fertile eggs quickly develop blood rings, spoiling the eggs for food or market. They are no longer fit for food after standing 24 hours at a temperature of 103° F. On the other hand, infertile eggs are still usable for food after seven days at that temperature.

Two series of illustrations show how fertile and infertile eggs appear after standing at a temperature of 103° F. for 24, 36, 48, and 72 hours, and 7 days, respectively.

The exhibit points out that the male bird does not increase egg production, but merely fertilizes the germ of the egg. While the male is important when hatching eggs are desired, he is equally undesirable when the eggs are to be marketed and used for food.

UNITED STATES DEPARTMENT OF AGRICULTURE

Livestock Exhibit

Use Purebred Sires and Create a Better Market for Your Feed:

This exhibit points to one of the many reasons why the use of good purebred livestock is more profitable in the long run than the use of common stock. A razorback hog, for example, takes about two years to mature, whereas purebred hogs reach a desirable market size in 8 months. Rear views of a scrub cow and a purebred, standing side by side, tell the story at one glance. With good livestock, more feed goes into marketable meat and less into mere maintenance.

Runts: Cause and Remedy:

This exhibit presents pictorially results of the Department's inquiry into this practical livestock question. It shows that inferior breeding and poor feeding are the chief causes of runty livestock and that the suckling period is the critical time in a young animal's growth. Parasites and insect pests are other causes of runtiness.

Contagious Abortion - How to Fight It:

Abortion is incurable by any known medicinal remedies, but by understanding the nature of the disease and how infection is carried, livestock owners may prevent its introduction. As pointed out in the exhibit, this disease is spread by aborted calves, afterbirths and discharges which contain millions of abortion germs. It is readily contracted by cows through feed contaminated with abortion germs. It causes countless "non-breeders" in the infected herd.

The following directions are given for handling an affected herd:

Provide maternity stalls for all cows at time of calving.

Isolate all "aborters" until all discharges cease.

Destroy every possible source of infection.

Regard every discharging cow as a menace to the herd.

As with all diseases, prevention is the wisest measure. Prevention of contagious abortion depends on knowledge of the disease and sanitation. New animals should never be admitted to a herd from doubtful sources.

Hog Cholera:

What hog cholera costs the country in hogs, labor, and wasted feed is the topic of this exhibit. The $30,000,000 annual loss can largely be avoided through sanitation and the use of the preventive serum treatment. A pictorial comparison is made of a victim of hog cholera and a healthy hog.

UNITED STATES DEPARTMENT OF AGRICULTURE

Livestock Exhibit

Beef Cattle on Farm and Ranch:

Some of the reasons why beef cattle are an asset to the farm and ranch are pointed out in this exhibit. Beef cattle furnish a very efficient means of reducing unmarketable or bulky crops to a concentrated, marketable product. They may be used to advantage on rough land not suited to crop production. Beef cattle on the farm favor a well-balanced distribution of labor throughout the year. And they conserve the fertility of the soil, if the manure is properly saved, by turning back at least 75 per cent of the nutrients contained in the plants harvested.

Progress of Bovine Tuberculosis Eradication Under the Area Plan:

A map of the United States by counties shows the status of the tuberculosis eradication work under the area plan on November 1, 1923. The modified accredited area which contains less than one-half of one per cent of infection is shown in one color; the counties in which one or more complete tuberculin tests have been made are shown in another color; and the counties in which area work is in progress are shown in a third color.

Under the area plan, which is rapidly gaining in popularity, arrangement is made to tuberculin test all cattle within a given section, such as a county. Local cooperation is obtained from the county officials and the people within the State, the United States Department of Agriculture assisting and directing the work. This plan is more economical to operate and gives more satisfaction to the farmer because he sees that it is a thorough cleaning-up process. The States and the Federal Government have made arrangements to declare certain counties free from tuberculosis after the infection is reduced to less than one-half of one per cent, and when the few infected premises are under control.

The other plan of eradication that is being followed with success is known as the accredited-herd plan. This plan is of especial interest to breeders of purebred cattle.

A Method of Shearing a Sheep:

By means of eight illustrations of different steps in the proper shearing of a sheep, this exhibit gives the correct method of going about this operation in order to obtain a good fleece. The fleece of the sheep should be dry, and the work done on a clean, well-swept floor, free from straw, chaff or litter of any kind. The

A Method of Shearing a Sheep: (Continued)

fleece ought to be clipped close to the skin and the shearer should avoid second cuttings of the same wool as fibers of good length are desirable. The next step is to roll and tie the fleece, wrapping the string around the fleece once in each of two directions at right angles to each other. Paper twine or hard-glaze twine should be used to tie up the fleece. Binder twine should never be used.

Appliances Useful for the Flock Master to Have in the Sheep Barn:

This display of appliances includes:

A wool card, useful in combing out the fleece, particularly on sheep for show.

Sheep shears, used to trim the udder and rear of the sheep in the spring before lambing.

Pruning shears for trimming excess growth from the sheep's feet.

A punch for making holes in the ears of the sheep to insert ear-tag labels for record purposes.

A model of a docking bench to be used with the wedge docking iron. By its use the rear of the lamb is not burned and the tails are removed at a uniform length.

Wedge-type docking iron, to be used with the docking bench. This iron is heated to a cherry red before being used.

Pincer-type docking iron, also to be heated to a cherry red.

Syringe with large nozzle, to use for drenching or giving injections to grown sheep.

A mouth piece for drenching which is closed at one end to prevent the direct flow of the liquid which may cause choking.

A glass graduate with a scale in ounces to be used in measuring doses of medicine for sheep.

Two smooth-necked drenching or nursing bottles.

A swan-bill nipple for bottle-raising a lamb.

Some rubber piping for drenching.

Docking and Castrating Lambs:

All lambs should be docked and the male lambs castrated when they are from 7 to 14 days old. The operation is best performed at that age because there is less risk and the lambs recover from the operation more quickly. Following are some reasons why it pays to dock and castrate lambs:

1. Docked and castrated lambs often make more rapid gains than those undocked and uncastrated.

2. The meat from ewe and wether lambs is better flavored than meat from bucky lambs.

Docking and Castrating Lambs: (Continued)

3. Docked and castrated lambs can be carried longer on the farm for meat without loss in value.

4. Docked and castrated lambs are more uniform, attractive, quiet, and make more rapid gains than undocked and uncastrated lambs.

5. On central markets castrated and docked lambs have brought from $1 to $3 more per 100 pounds than uncastrated and undocked lambs.

The exhibit shows a series of illustrations of lambs properly and improperly docked or not docked at all, and of the proper way to go about the two processes.

Hay and Grain Feeding Racks for Sheep:

This exhibit consists of small models in correct proportions of sheep feed racks suitable for feeding hay and grain.

One of the models shown is of a combination hay and grain rack which may be entered by the attendant when feeding grain. It can be used in a barn where the feeding is done by passing directly from the alley to the rack, thus avoiding the difficulties which result when the feeder must enter pens filled with sheep.

Farrowing House:

This is a model of a hog farrowing house designed to provide for a maximum of sunlight and a minimum of air space to be heated in cold weather. The ventilation is such that a number of hogs may be housed without frost accumulating on the ceiling. The outside pens provide space for feeding the sow away from the pigs. This not only avoids the damp, foul bedding that results when the sow is watered and slopped near her bed, but also prevents injury and losses to the young pigs which are often stepped on by the sow when she is fed near them.

Flat-Bottom Hog Trough:

The flat-bottom trough can be used for dry or slop feeds or for water, and is constructed so that hogs may eat and not get their feet in the trough. It is almost impossible for a hog to turn it over. The feeder can get the slop in the trough without interference from the hogs, and without pouring it on their heads. This trough may be made in any length to suit the hog man's convenience.

UNITED STATES DEPARTMENT OF AGRICULTURE.

Livestock Exhibit

POULTRY.

Some Standard Varieties of Poultry:

This exhibit shows 12 lifelike pictures in their natural colors of the more popular varieties of standardbred poultry. These pictures are photographs of high-class specimens and show the correct type and color of the respective varieties.

Standardbred Male Will Improve a Mongrel Flock:

This exhibit shows 8 colored photographs illustrating how a standardbred male will improve a mongrel flock of hens. The pictures start with the mongrel flock of hens and the standardbred male and are followed by a picture of the offspring of each succeeding generation, showing the improvement in size, type and color with labels under each picture, giving the increase in weight.

Hatch Early to Produce Fall and Winter Eggs:

This exhibit shows 8 pictures and illustrates by comparison the advantages of hatching early in the season so that the chicks may get a good start before the hot weather sets in, which otherwise is apt to retard growth.

Feeding Hens for Egg Production:

This exhibit shows 8 pictures illustrating improved feeding appliances and better methods of feeding. These pictures are supplemented by a photograph showing the amount of feed consumed and eggs produced by one Single-Comb Rhode Island Red pullet.

Culling the Farm Flock:

Culling the farm flock as a means of weeding out the drones or poor layers and thus saving on feed and room has become a popular practice among progressive farmers and poultry keepers. This exhibit, by means of colored photographs of both live and dressed specimens, shows the contrast in body formation between a good and poor layer; it also illustrates one of the practices used in determining a good layer, by measuring with the fingers between the two pelvic bones and between the pelvic bones and keel.

Dry-Mash Hoppers:

These two models are practical types of an inside and outside dry-mash hopper. The inside hopper is easily and cheaply constructed from an ordinary box, with a latticed top. The outside hopper is of the type recommended for farmers and commercial poultrymen, where a number of fowls are kept. This hopper is built on runners so that it may be drawn by a horse from one place to another for filling or other purposes. It can be built any size desired.

UNITED STATES DEPARTMENT OF AGRICULTURE

Livestock Exhibit.

POULTRY (Continued.)

Open-Front Laying House:

This house is constructed with half the front open and covered with wire netting. It is recommended for southern conditions, where the climate is sufficiently mild to use an open front house during the whole year. The house measures 12 by 15 feet and has a capacity of 60 hens.

MISCELLANEOUS.

In addition to the exhibits described there is included a collection of miscellaneous material pertaining to the exhibit, such as blue prints describing the various kinds of equipment shown in model form, a selected supply of Farmers' Bulletins, posters on livestock subjects, and other literature pertaining to the various subjects presented.

UNITED STATES DEPARTMENT OF AGRICULTURE

Livestock Exhibit.

The following pages describe exhibits of the United States Department of Agriculture which discuss other phases of the same subjects or of closely related livestock subjects, but which are not included in this collection.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"LIVESTOCK FARM ORGANIZATION."

The exhibit entitled "Livestock Farm Organization" is based on a study of one year's business from June 1, 1922, to June 1, 1923, on a 240 acre cattle-feeding and hog-producing farm in Burt County, Nebraska. An enlarged photograph painted in colors shows a view of the farm buildings with the fat steers a few days before they were marketed, and some of the other livestock on this farm.

During the crop year 1922, 130 acres of the 240 acres in this farm were in corn, 43 in oats, 28 in alfalfa, 30 in pasture and 9 acres in farmstead. The livestock kept included 43 steers from September to May; 28 sows which raised 175 pigs; 5 cows, 5 heifers and 7 work horses.

The 43 steers were bought in Omaha in September, 1922, averaging 595 pounds, at $6.75 per hundredweight, and sold the following May on the same market averaging 1,027 pounds, at $9.80 per hundredweight. They returned 85 cents a bushel for the corn they ate when corn was worth only 67 cents, besides furnishing a market at fair values for considerable hay and pasture.

The 28 sows produced 175 pigs, 17 of which died during the year. The 44,000 pounds of pork (live weight) raised on this farm was apparently produced very economically although no record was kept of the amounts of feed fed to the hogs.

The following is a summary of the year's business:

Receipts		Expenses		Income	
Hogs	$3,187	Labor	$922	Receipts	$7,503
Fattening cattle	2,447	Repairs and depreciation	734	Expenses	2,725
Corn on hand	1,497	Taxes	346	Farm Income	4,778
Miscellaneous	372	Veterinary	184	Less 5% on investment	2,665
Total	$7,503	Feed bought	170	For farmer's labor and management	$2,113
		Threshing	162		
		Other expenses	207		
		Total	$2,725		

In addition the farm furnished farm-grown products used for the family worth about $400, and a house that would cost at least $200 a year if rented.

A study of the year's business from a farm-management standpoint shows the principal reasons why this farm was profitable. It was a fairly large business whether measured in acres, investment or amount of business done. As much corn (the crop best suited to the region) as possible was grown and it was marketed in several ways, through cattle and hogs, or as corn. The livestock enterprises also gave employment during the winter, utilized roughages and conserved fertility. In other words the farm was well balanced. It also had fair crop yields and used labor efficiently. It had very good production of beef and pork, its principal enterprises. A study of the year's business shows that this farm was well managed as it paid the operator $175 a month for his time above all expenses and 5 percent interest on investment.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"HORSE PRODUCTION."

There is a need in the United States for production of horses and mules, especially those of better quality. Based upon 1920 census figures, about 200,000 fewer colts were produced in 1919 than were needed to supply replacements on farms alone. About 225,000 high-class animals are needed for annual replacements in cities, making a shortage in replacements of over 400,000 horses and mules in 1919 in the United States.

The surplus and shortage of horses and mules produced on farms is shown geographically on a map of the United States. In the area including the Middle West States of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Iowa, Missouri, Illinois, Indiana, and Ohio are produced most of the work horses and mules for the United States. Although most of our big draft animals needed in the cities and specialized farming areas come from this area, only a small surplus was produced above their own replacement needs in this region in 1919.

In the States of Kentucky and Tennessee where many good mules and light horses are produced, the production was about equal to replacement needs. In the 12 States west of and including Texas, where the horses produced are principally range stock, there was a very small surplus. Yet because most of the stock is undesirable, production may be said to be about equal to replacement needs. On the other hand, the production of horses and mules in the 24 Eastern and Southern States is only one-half that needed for replacements, and both farmers and city trade must look to other sections for replacements.

The Department calls attention to the fact that farmers might profitably produce replacements enough, in connection with general farming, to be able to sell off the older work animals each year. As local market values are determined by the city and eastern trade, it is important that the right kind be produced. The small undeveloped animal of poor quality is a drug on the market. The best brood mares should be bred to purebred sires of the right type, and feeding the youngster is of parallel importance to proper breeding. Pasture, which is a primary necessity, must be supplemented with grain and hay, and the colt kept growing at all times. Not only is the use of the non-salable roughages of economic importance, but the grain and hay produced in general farming may be profitably marketed through young stock.

As the market demands well-broken and trained horses that will last a long period of years, the colts should be broken at about 3 years of age and used on the farm for a few years. By this system these young horses together with the breeding stock will furnish the power for the average farm, and the young stock will be increasing in sale value. The maximum value of horses is at about 6 years of age and the surplus animals should be sold at this time. The well-bred horse or mule that has been properly fed and well broken is usually salable at a profitable figure, and should increase the income of the general farmer.

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"HORSES FOR POWER."

Horses are the most flexible source of power for farm use, readily lending themselves to the work to be done. A recent test demonstrated that a two-horse team can exert a pull of as high as 21 horse power. It is the common practice to use one, two, three, four, five or six horse hitches in various farm operations, adapting the hitch to meet the power need.

Horse power is characterized by its versatility and adaptability to perform various farm operations. The horse is not limited either by the topography of the ground or by his ability to perform only one farm task economically, for he may be used equally well in plowing, harrowing, cultivating, seeding, haying, threshing, and farm and custom hauling under varying conditions.

The horse is self-replacing, earns its keeps and increases in value up to the marketable age. Farmers may breed enough mares yearly to replace the marketed stock, thus disposing of mature animals at a profitable figure. The young stock raised under this plan continually increase in value from birth to time of disposal and, at the same time, pay their way by performing the farm work.

Where horses are kept, soil fertility is conserved and there is no direct cash outlay for power as the horse consumes home-grown feed.

The farm-labor problem may be partially solved through the production of good horses. Where farmers are dependent upon their families for help, horse production furnishes the element of human interest necessary to keep the youngsters home on the farm.

Market Classes of Mules.

On the market, mules are classified according to their use, being grouped into five general classes: Draft; farm; sugar; cotton; mining.

The draft class includes the largest mules, standing from 16 to 17-1/2 hands and weighing from 1,200 to 1,600 pounds. They are used primarily for heavy teaming in cities; contract jobs; and lumber camp work.

Farm mules vary greatly in type and quality because the demand for a specific type is not well defined. They range in height from 15-1/2 to 16 hands and in weight from 900 to 1250 pounds.

Animals of the sugar mule class are characterized by ranginess, style and quality. In type, they stand as intermediate between the draft and cotton mule classes. They range in weight from 1,150 to 1,300 pounds and in height from 16 to 17 hands.

The cotton mule is generally lighter, more angular than the sugar or surface mining mule, but heavier than the pit mule. In height, the cotton class varies from 13-1/2 to 15-1/2 hands and in weight from 750 to 1,100 pounds.

Mining mules vary greatly in height and weight depending upon their use. The pit mule of this class weighs about 600 pounds, while the surface type may scale up to 1,350 pounds. The range in height is from 12 to 16 hands.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"RAISING SHEEP FOR PROFIT."

Some of the rules of good sheep husbandry are presented by a series of pictures and legends thrown upon a screen by a continuous film stereoptican. Following are the legends which are used to tell the story:

On an extra good pasture, at breeding time, a flock of ewes will produce 15 or 20 lambs more per 100 than a flock of similar ewes on poor pasture.

Purebred rams, desirable in type, fleece, and form, sire more profitable lambs than scrub rams.

Save feed and give the necessary exercise by keeping the flock on pastures, meadows, or stubble fields in the fall when weather will permit.

Keep ewes thrifty. Feeding good legume hay during the winter helps them to produce strong lambs.

Insure a good milk supply for lambs by feeding the ewes 1/2 to 3/4 pound of grain (oats, bran, and corn) a ewe a day from a month before lambing until pastures are plentiful.

Keep lambing ewes and their lambs in individual pens until the lambs are well mothered.

Lambs properly docked and male lambs castrated bring from $1 to $2 per 100 pounds more on the open market. These operations cause least trouble when the lambs are 7 to 14 days old.

Shear on a clean, well-swept floor. Dirt in the fleece reduces its market value.

Roll the fleece neatly and tie it with paper fleece twine. Fibers of binder twine and other rough twine mix with the wool and injure its value for cloth.

Keep the lambs healthy by rotating on permanent pastures or fresh forage crops.

Stomach worms may be controlled by proper treatment of sheep and lambs with copper sulphate solution.

Lambs weighing from 75 to 85 pounds when in finished condition are preferred by the markets. Lambs much heavier are less desirable and usually bring lower prices per pound.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"MAKING MONEY WITH HOGS."

Some of the important points in successful hog raising are illustrated by a series of pictures and legends thrown upon a screen by a continuous film stereoptican. The screen is located inside a full-sized model of a colony-type hog house. Following are the legends which are used to tell the story:

A good purebred boar is practically a necessity for profit in producing market hogs.

Well-bred sows of good type from strains of known prolificacy must be used.

A gilt should not be bred before she is well developed.

Pasture, or alfalfa hay and protein concentrates should be used with grain during the gestation period.

Clean, dry and well- bedded and ventilated quarters, equipped with a guard rail should be provided for the sow at farrowing time.

Farrowing time is a very critical time. Give every needed attention to the sow and litter.

Sow and pigs should have access to good pasture after farrowing.

Provide a self-feeder in the creep for pigs as soon as they will eat grain.

No class of hogs need pasture more than growing pigs.

For best results, pigs must be kept free from lice, worms and disease.

Using self-feeders for grain and tankage or fish meal is good practice, when sows and pigs are on pasture.

Hogging-down corn with a protein supplement such as tankage, given in self-feeders is satisfactory and profitable method of fattening hogs.

Of the 48,000,000 hogs slaughtered under Federal inspection last year, about 15 per cent of them showed tuberculosis to some extent.

Leading packers are paying 10 cents more per hundredweight on hogs originating in counties free or nearly free from bovine tuberculosis.

Hog cholera, the most destructive hog disease, is preventable by proper methods of sanitation and immunization.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"CROPS FOR LIVESTOCK."

Corn, clover, oats and soy beans are the crops selected to illustrate the exhibit "Crops for Livestock." They are all successfully grown in the Corn Belt where a large percentage of our livestock is produced.

Corn is the most important crop in the United States, both in acreage and in value. The amount of yield is greatly influenced by the quality of seed that is planted. This is illustrated in the exhibit by pictures of two baskets of corn grown on equal areas. The basket from the area planted with good seed contains more corn and larger, better-shaped ears than the basket containing the corn grown from the poor seed. If the corn is to be fed to hogs, one of the cheapest methods of harvesting it is to turn hogs in the field and let them eat the corn from the stalks -- commonly called "hogging down."

Clovers make excellent feed whether used as pasture, as hay, or as soiling crops. Their high protein content make them valuable feed for growing animals, and a good supplement with corn. One ton of clover hay has a feeding value equal to 1-1/2 tons of timothy hay, 3/4 ton of shelled corn or 2/3 ton of wheat bran for fattening animals.

Oats is the standard grain feed for horses in most sections of the country, and is recognized everywhere as a good growing feed for all young stock. Oats is an easily digested feed and has a high protein content.

Soy beans is another crop that makes good hay and is becoming popular in the Corn Belt as a pasture crop. It can be grown on a wide range of soils, but inoculation is necessary when it is grown for the first time. Soy-bean hay contains a high percentage of protein and is highly palatable. Soy beans are usually grown with corn, when used for silage. Bulletins describing proper methods of handling the above-named crops and their use as feed for livestock, can be secured from the Department.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"FEEDS FOR LIVESTOCK - CORN."

This exhibit enumerates some of the practices that must be observed in growing a good corn crop, tells how corn must be fed to get the most out of it, and gives some figures on the uses of corn based upon estimates by the Department.

One of the first considerations in plans for a better corn crop is the seed used and the seed bed in which it is planted. The yield is greatly influenced by the quality of seed that is planted, and if good seed is planted care should be taken to see that the field is well prepared for corn and well cultivated until the corn is mature. Protection from injury by insect pests such as the corn ear worm and the European corn borer, and protection from destruction by rodents such as the 13-lined ground squirrel, often makes the difference between a good corn crop and a poor one. Limited space does not permit giving details of good corn culture in the exhibit, but those who wish detailed information on the subject may obtain it by writing to the Department for bulletins on the subject.

The important point to remember when feeding corn is that it is not a complete and well-balanced feed by itself, and that it should be combined in the ration with feeds containing larger amounts of protein. For cattle, green legumes, legume hay or a protein meal should be added to corn to make the ration well balanced. In a three-year experiment with yearlings and 2-year-old steers in Nebraska, corn and legume hay produced 37 per cent more gain than practically the same amounts of corn and prairie hay. In hog feeding, the value of corn is increased 33 per cent or more by feeding suitable protein feeds such as tankage or skim milk with it.

The right section of the exhibit shows in graphic form the uses made of the corn crop in the United States in an average year. More than 85 per cent is fed to livestock and somewhat less than 10 per cent is used directly for food. The hog is the largest direct consumer of corn; 40 per cent of the total crop is fed to swine on farms. Horses and cattle, it is estimated, account for 20 per cent and 15 per cent, respectively. The next largest use of corn is for human food, 10 per cent of the crop being consumed on farms and ground in merchant flour mills (principally for food). The exports of corn as grain have been almost negligible.

A detailed study of corn crops of the United States is contained in the 1921 Yearbook of the Department.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"FEEDS FOR LIVESTOCK - PASTURES."

This exhibit illustrates the value of pasture as a feed for livestock, and some of the steps necessary to produce good pastures.

A summary of feeding tests shows the value of clover or alfalfa pasture in pork production. In these tests growing pigs were fed corn and tankage both on clover or alfalfa pasture, and in dry lots. Nineteen pigs, on the average, were carried from a weight of 52 pounds to the end of the pasture season. The pigs fed corn and tankage on clover or alfalfa pasture made a daily gain of 1.31 pounds, and required only 370 pounds of corn and 24 pounds of tankage for 100 pounds gain. The pigs in dry lot, although receiving the well-balanced ration of corn and tankage, gained only 1.13 pounds daily and required 410 pounds of corn and 40 pounds of tankage for 100 pounds gain.

On an average an acre of clover or alfalfa pasture saved 1,149 pounds of corn and 468 pounds of tankage, compared with the dry-lot feeding. In addition, 2,326 pounds of hay were cut from each acre of pasture in those tests in which the weights of hay were reported. Further advantages in favor of feeding the pigs on pasture are the more rapid gains of the pigs, and the fertility added to the soil through the growth of legume hay.

Bluegrass is the most important of the cultivated pasture grasses in the United States. The right section of the exhibit shows the important points which must be observed in producing good blue-grass pastures. They are listed as follows:

1. Close grazing to keep grass of good quality and prevent weed growth.

2. Occasional mowing if necessary to keep down weeds.

3. Top dressing with manure or phosphate to increase the growth of grasses.

4. Before grazing in the spring, let grass get two inches high.

Good temporary or rotation pastures can be made of: Hay mixtures, sweet clover, alfalfa, soy beans, red clover, small grains and grain stubble.

More detailed information about pasture management or the utilization of pastures by livestock may be secured by writing to the Department for bulletins on the subject.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"FEEDS FOR LIVESTOCK - SILAGE."

The exhibit on silage enumerates some of the crops that may be used for silage, gives some of the reasons why silage is a good feed for livestock, and cites some feeding experiments in which the value of silage as a feed for livestock has been tested. In addition glass jars, on exhibition, contain samples of silage made from corn, from sorghum and from sunflowers.

The center section of the exhibit gives the results of an experiment conducted by the United States Department of Agriculture and the West Virginia Agricultural Experiment Station to test the value of corn silage for the beef breeding herd. The results showed that corn silage was worth 60 per cent more than shock corn for wintering mature beef cows. An illustration shows some of the animals that were used in these tests.

On the same section of the exhibit are the results obtained by the Illinois Agricultural Experiment Station in an experiment which showed that for growing beef calves an acre of corn silage was worth 30 per cent more than an acre of shock corn.

The right section lists the reasons why silage is a good livestock feed. They are as follows:

Silage creates an appetite for less palatable and cheaper roughages.

Silage is eaten practically without waste.

Silage enables the stockman to keep more animals on the same area of land.

Silage is more palatable than the same crops fed dry.

Silage provides succulence at any desired time of the year.

The left section enumerates the crops that may be successfully used for silage. Corn is the principal crop used for silage, but in regions where sorghums do better than corn, they make excellent silage too. Vetch and oats, sunflowers, sweet clover, alfalfa, and soy beans also have been made into silage with good results.

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"UTILIZATION OF FEEDS."

In planning feeding operations the livestock feeder often wishes to know how much feed of different kinds is required to fatten a steer or a hog or a sheep, or a carload of either. The booth shows pictorially and graphically the approximate amounts of feed, and successful combinations of feed, that will fatten a carload each of sheep, hogs, and steers. They are as follows:

600 bushels of corn and 17 tons of hay will fatten 250 lambs weighing 55 pounds each, and make them weigh 80 pounds, or one double-deck carload.

450 bushels of corn and 2,750 pounds of tankage or fish meal will fatten 70 hogs averaging 100 pounds, to 200 pounds each, making one carload.

1,100 bushels of corn, 10 tons of alfalfa hay and 5 tons of straw will fatten 20 steers averaging 850 pounds, causing them to gain 325 pounds each in 180 days, making one carload.

The exhibit shows strikingly how livestock concentrate the bulk of farm products and thus greatly reduce the cost of transportation to market.

"Livestock Need Crops--Crops Need Livestock" is the title of a panel on which are set forth some of the benefits of well-balanced farming which involves maximum crop production and the use of crops on the farm by livestock. Such a combination produces an even distribution of labor throughout the year, permits the use of rough lands, saves surplus feeds and feeds that would otherwise go to waste, conserves the fertility of the soil, and reduces the cost of shipping the production of the farm to market, as noted above.

No matter how well-balanced the system of farming may be, however, it can not be successful without good crop yields. Proper crop rotation is necessary to obtain good crop yields. Two good Corn Belt rotations are shown by pictorial diagrams. For regions where winter wheat is grown a good rotation is: Corn; corn and soy beans; oats or soy beans; wheat; clover or sweet clover. For regions where winter wheat is not grown a good rotation is: Corn; corn and soy beans; oats; clover or sweet clover.

All recommendations for feeding and farm management practices must be of a general nature. Each farm presents an individual problem that must be analyzed and solved to fit its special conditions. The Department is always glad to answer questions that will enable the farmer to solve such problems.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"BETTER BREEDING AND FEEDING."

This exhibit features the "Better Sires - Better Stock" campaign and the "Better Feeding of Livestock" service of the Department, and seeks to show to those who have not joined these movements the excellent results in livestock improvement that are being accomplished by the use of purebred sires and better feeding methods.

The central attraction of the exhibit shows a livestock farm before and after purebred sires were used. The first picture shows out-of-date buildings and unkempt buildings in keeping with the inferior breeding sires used on that farm. Then, by means of an automatic change of lighting the observer no longer beholds the inferior farm scene which is painted on a screen, but looks beyond it and sees in its stead the same farm after the use of purebreds. Modern breeding methods have brought into use modern buildings and equipment, and the owner of the farm can be seen in the foreground showing some of his animals to prospective buyers. Displayed on the gate-post of this farm is the farm sign, reading "Purebred Sires Exclusively Used on this Farm," which the Department is sending upon request to those who enroll in the "Better Sires - Better Stock" campaign.

Educational posters used in acquainting the public with the purposes of these movements are shown in the exhibit. These include the illustrated poster entitled, "Ten Points in Better Feeding," and others. The Feeding Problem Sheet which brings the better feeding service direct to the farmer or other livestock feeder is shown in its actual size.

As an example of the livestock improvement being made in some sections of the United States, the record of one county that has been active in the "Better Sires - Better Stock" campaign since its beginning, October 1, 1919, is given. This county, Pulaska County, Virginia, shows an increase in numbers of purebred livestock as follows from October 1, 1919, to October 1, 1923:

Purebred rams.	135
Purebred ewes.	260
Purebred boars	128
Purebred bulls	78
Purebred cows.	151
Poultry, males, (estimated)	750
Poultry, females, "	3,500

The figures show a gain of 150 per cent in purebred breeding stock, and 578 farmers in Pulaski County are now using purebred sires exclusively for all classes of livestock.

During the first four years of its progress, the "Better Sires - Better Stock" campaign has enrolled more than 12,000 persons owning 1,500,000 animals and fowls.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"SAVE YOUNG ANIMALS."

Infant mortality among livestock is a source of great loss in all sections of the country. Many of the losses are preventable by the farmer himself, and in stopping these losses he increases the numbers of animals raised without increasing his breeding herds, thereby increasing his chances for profit without an additional outlay of money. This exhibit points out some of the losses among young animals and some means of preventing them.

Losses of young animals are caused by predatory animals such as wolves, mountain lions, coyotes, bobcats and bears; diseases such as tuberculosis, hog cholera, blackleg and white diarrhea; parasites such as intestinal roundworms, lung worms, stomach worms, and lice and mites; insects, such as screw worm injury to calves in the Southwest; storms and injurious weather changes; poor equipment and insufficient shelter; and poor management resulting in improper breeding and feeding methods, and carelessness.

Tuberculosis and hog cholera are two of the worst enemies of young animals. Four calves out of every hundred in infected herds are tuberculous, and 15 hogs in each 100 slaughtered under Federal inspection show lesions of tuberculosis. Milk fed to calves and pigs should be cooked unless from tuberculosis-free cattle. An average of 2 hogs die of hog cholera each year on each hog-raising farm in the United States, costing farmers $30,000,000 annually. Much of this loss can be prevented by keeping hogs in sanitary quarters, isolating new stock for 15 days, burning or burying deep all animals that die on the farm, avoiding the feeding of raw garbage containing pork scraps, and immunizing hogs when cholera appears in the neighborhood.

A study made by the Department in cooperation with State colleges on 168 farms in Indiana, Illinois, and Iowa, showed that 35.8 per cent of the 1922 spring pig crop died before weaning time. A total of 18,837 pigs were farrowed on those farms that spring, and 6,749 of them died before weaning. Following is a list of the losses with a list of preventive measures the farmers might have taken, as shown on the right section of the exhibit:

How the Pigs Were Lost.	How Farmers Can Prevent Many of These Losses.
1232 were farrowed dead	Better breeding stock; better fed sows.
571 were farrowed weak	Better breeding stock; better fed sows.
2844 were overlaid	Guard rails in farrowing pens; less bedding.
326 starved on blind teats	Learn to recognize blind teat.
62 were aborted	Better feeding; sanitation.
405 were chilled	Better housing; better care.
157 had sore mouths	Sanitation.
120 were eaten by sows	Better management.
298 died of scours	Better feeding; sanitation.
134 died of hog cholera	Use immunized breeding stock.
110 died of other diseases or parasites	Sanitation.
73 were injured, drowned, etc.	Better management.
507 died of unknown causes	The farmer should learn the causes of his losses.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"LIVESTOCK STATISTICS."

Figures show that the United States has but one-sixteenth of the world's population, but it has one-sixth of the world's livestock, approximately as follows:

One-half of the world's 9,000,000 mules
One-third of the world's 169,000,000 swine
One-fifth of the world's 100,000,000 horses
One-seventh of the world's 492,000,000 cattle
One-ninth of the world's 465,000,000 sheep

Statistics show that the United States ranks fourth in the per capita consumption of meat. The following table shows the figures for the principal meat-eating nations of the world. (U. S. figure is a 10-year average from 1912 to 1921; other figures are prewar.)

Country	Lbs. meat	Country	Lbs. meat	Country	Lbs. meat
Argentina	281	France	80	Norway	62
Australia	263	Denmark	76	Sweden	62
New Zealand	213	Switzerland	75	Poland	62
UNITED STATES	142	Belgium	70	Russia	50
Canada	137	Netherlands	70	Spain	49
United Kingdom	120	Greece	68	Italy	47
Germany	115	Austria-Hungary	64		

A chart showing the trend of human and livestock population from 1850 to 1922 shows that human population has had the greatest increase, that the number of swine is the most variable, and that sheep show the greatest general decline. The relative positions of the curves in 1922 indicate more and more difficulty in supplying our ever-increasing population with sufficient meat products, and at the same time maintaining a surplus of these products for export.

A chart giving the numbers of beef and dairy cattle in the United States shows that beef cattle have undergone more fluctuation and that at present beef and dairy cattle are about equally numerous.

The livestock industry of any nation acts as a great storage reservoir for its surplus grains in years of plenty, and its grasses and forage crops that can not be eaten by man. It is a significant fact that no great meat-eating nation has ever suffered famine from crop failure.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

"THE STORY OF THE STOMACH WORM."

The prevention of injury and loss by stomach worms is one of the most serious problems confronting owners of farm sheep. Either lambs or sheep may be affected by the worms at any season of the year. They prevent proper growth and development, and are therefore particularly destructive to lambs. The injury and losses caused by stomach worms are often so great as to wipe out entirely the profits of sheep raising.

The Department of Agriculture has made a study of the life history of this parasite and found a practical and inexpensive treatment that will prevent stomach-worm injury. This treatment is known as the bluestone (copper sulphate) treatment. The exhibit on this subject consists of a pen of sheep which are used to demonstrate the treatment, and a large sign above the pen which gives in brief form the principal events in the life history of the stomach worm, and a statement of the benefits to be derived by ridding sheep of the parasite.

The life history of the stomach worm is briefly as follows:

1. Wormy sheep scatter worm eggs in their droppings. (The eggs are too small to be seen except with a microscope.)

2. Young worms (also microscopic in size) hatch from the eggs on the ground.

3. In a few days (a longer time in cool weather) the young worms on the ground develop to the infective stage.

4. Young worms in the infective stage crawl up grass blades.

5. Sheep eat the wormy grass.

6. The young worms when swallowed grow to maturity in from 2 to 3 weeks and begin producing eggs.

7. In a little while both flock and pasture swarm with worms.

Stomach worms are most prevalent in permanent pastures. They cause weakness, "paper skin," "poverty jaw," scours, and death. A photograph is shown of two sheep, one a wether lamb less than four months old and kept free from worms from birth. Its weight is 81 pounds. The other is a yearling wether that was wormy when a lamb, and it weighs but 65 pounds. By the proper use of the bluestone treatment losses from stomach worms are prevented. Lambs thrive and reach market size at an early age. Ewes under treatment improve in flesh and wool, produce stronger, healthier lambs and give more milk than sheep that are wormy.

Directions for giving the bluestone treatment may be obtained from the men demonstrating the treatment, and literature on the subject may be obtained from the Department.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

Swine Sanitation

ROUNDWORM EXHIBIT

What it shows. This exhibit shows that suitable sanitary surroundings are important in producing healthy and worm-free pigs, and that unsuitable and insanitary surroundings tend to produce diseased and wormy pigs. No exhibit is necessary to show that healthy pigs make money for you and that diseased pigs cause you to lose money. Experience shows that worms are among the most important causes of disease among swine. Therefore the fact that the application of the swine sanitary system described below has in many cases converted an unprofitable swine-raising business into a profitable one is of vital interest to hog raisers.

What harm do worms do? They kill many young pigs and convert many others into runts. Thumps in young pigs are commonly due to worms, and many young pigs die of thumps. Worms are especially harmful to young pigs. Dead pigs and runts cost money. They mean lost pork production, lost feed, lost breeding expenses, lost labor, and lost overhead costs.

How do worms injure pigs? The large roundworms live as adults in the intestines of the pig. The females produce enormous numbers of very tiny eggs which pass out in the manure. The young worms develop in these eggs, just as a chick develops in an egg, in as little as 10 days to the stage where they will infect pigs. What chance has the little pig of avoiding these millions of eggs scattered through the manure in a dirty hog lot? Not a chance! He gets them, plenty of them. The eggs hatch in the pig's intestine and the young worms then leave the intestine through the walls, get into the blood stream, and go to the liver; they leave the liver, go to the heart and are carried in the blood to the lungs. Here they bore out of the blood vessels and enter the air passages. In doing this they tear the delicate tissues of the lungs, causing little bleeding spots. This injury gives rise to thumps and pneumonia, from which many little pigs die. If they don't die, they experience a severe setback and many of them become unprofitable pigs--runts. In the surviving pigs the young worms come up the windpipe, are swallowed and on reaching the intestine this second time they settle down, grow and take food from the pig and convert it into worm eggs.

How can you prevent losses from worms? To prevent losses from worms you must protect your little pig. He can't save himself from worm eggs in a hog lot that swarms with them. He will get them with every mouthful he nurses from a dirty sow. But if you will protect him from worms until he is four months old he will be resistant to worms. Few worms will ever

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

Swine Sanitation

ROUNDWORM EXHIBIT (CONTINUED)

develop in him after that age and those that do will cause less damage than the same number would in a younger animal. To protect the baby pig use the system of swine sanitation developed by the U. S. Department of Agriculture and tested for over three years in McLean County, Illinois, with striking success. Last year over 10,000 pigs were raised in that county under this system. The system is being used in many other places. It costs only a little labor and thought and it pays big returns on the investment. There is no limit to the number that can share in this investment. Why not take stock in it yourself?

Here's the system. Before farrowing, clean the farrowing pens thoroughly with hot water, soap and lye.

Before putting the sow into the farrowing pen, wash her thoroughly with warm water, soap and a brush, paying especial attention to the udders.

Within 10 days after farrowing haul the sow and pigs from the farrowing pen to a pasture that has had no pigs on it since it was sown to a forage crop.

Keep the sow and pigs there, away from other pigs, for at least 4 months, giving them plenty of clean water and shade.

That's all! There is no hocus-pocus, no initiation fee, no ceremony. It is very simple; most of the good and valuable things in life are simple.

The system was devised to protect swine from worms. You will find that it will protect swine from many diseases and protect you from financial losses due to them.

The exhibit tells the story, but lest you forget the details write to the department for a copy of the article on swine sanitation.

UNITED STATES DEPARTMENT OF AGRICULTURE
Livestock Exhibit

DEPARTMENT OF AGRICULTURE LITERATURE.

There is a Government bulletin on nearly every problem relating to farming, and the Department of Agriculture aims to send publications to persons who will read and use them. The exhibit includes a bulletin rack containing selected literature likely to interest visitors attending a livestock exposition. Attendants will give information regarding Department literature and how to select and obtain it. Following is a selected list of bulletins related closely to subjects treated in the exhibit:

Farmers' Bulletins:

578. Making and Feeding of Silage.
803. Horse Breeding Suggestions for Farmers.
810. Equipment for Farm Sheep Raising.
834. Hog Cholera.
840. Farm Sheep Raising for Beginners.
874. Swine Management.
1005. Sweet Clover on Corn Belt Farms.
1073. Growing Beef on the Farm.
1132. Planning the Farmstead.
1134. Castrating and Docking Lambs.
1167. Essentials in Animal Breeding.
1170. Meadows for the Northern States.
1218. Beef Production in the Corn Belt.
1229. Utilization of Alfalfa.
1298. Cost of Using Horses on Corn Belt Farms.
1341. Mule Production.

Miscellaneous:

Department Circular 235, Utility Value of Purebred Livestock.
Year Book Separate No. 874, Our Beef Supply.
Year Book Separate No. 882, Hog Production and Marketing.
Year Book Separate No. 845, Hunting Down Stock Killers.
Year Book Separate No. 855, Death to the Rodents.

When ordering literature care should be taken to specify as nearly as possible the kind of information desired. It is best first to obtain a list of Department publications and to give the title and number, taking care to specify whether the bulletin desired is a Farmers' Bulletin, Department Bulletin, or Department Circular. If this is not done doubt and delay may be caused in filling the order. Farmers' Bulletins treat general farm problems in a popular style. Department Bulletins give the results of experimental and research work, while Department Circulars contain information of timely interest on special subjects.

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